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Influence of nineteenth and early twentieth century railroad accounting on the development of modern accounting theory

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INFLUENCE OF NINETEENTH AND EARLY TWENTIETH CENTURY RAILROAD ACCOUNTING ON THE DEVELOPMENT OF MODERN ACCOUNTING THEORY*

Abstract: This article is concerned with the problems of nineteenth century railroad asset valuation. The article presents some legal reasons for the early use of depreciation and continues with specific illustrations of railroad financial statements in the 1840s. The article concludes by stating that many of the basic concepts of accounting theory such as disclosure, matching measurement of cash flow had origins in railroad accounting.

The first steam driven locomotive started operating in England during the year 1830, and in the same year was introduced to the United States. Thus a study of railroad accounting practices should begin with information from the decade of the 1830's. The evolution of railroad accounting is traced to 1926, the year in which the Interstate Commerce Commission began to stipulate railroad depreciation policies.

The primary concentration of this study is on the nineteenth century, since it was during the industrial revolution that the requirements for reporting on the custodianship of corporate management to absentee owners first became recognized. During the twentieth century, railroad accounting practices were primarily dictated by regulatory agencies and as a result have diverged from the accounting principles which are generally accepted for other corporate enterprises.

The central thesis of this paper is that the major influence of railroad accounting related to the need for adequate disclosure of the economic health of the business enterprise. We can learn from the experiences of the railroads as to the contemporary discussions and debates regarding the proper means to achieve disclosure. Because the railroads were some of the first companies to require major quantities of long-lived fixed assets, one of the first problems faced by early railway accountants concerned that of asset valuation. Due to the major investments required, the railroads were also the first companies to require massive amounts of outside capital; thus their

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accountants were the first to deal with the problem of public reporting to stockholders and potential stockholders. Finally, because of the quasi-public nature of the industry, these accountants were the first to deal with the problem of providing accurate disclosure of economic health to users. The disclosures originated from the requirements of government regulatory agencies. Each of these problems will be discussed in the following analysis.

THE PROBLEM OF ASSET VALUATION

Chatfield has stated that the railroads were the first industrial enterprises to be confronted with the whole range of asset valuation problems. Requiring much larger capital investments and more long-lived equipment than most businesses of the early nineteenth century, they were compelled to isolate asset expenditures and account for them methodically.[1] The need was recognized early that the lives of assets were limited and that they would eventually require replacement. This led to an acknowledgement by some parties that there was a need for a portion of earnings to be set aside for the replacement of assets. In 1841 an English publication, *The Railway Times*, wrote, "The declaration of a dividend without making allowance for depreciation of stock, cannot in our opinion be regarded as other than fallacious . . . The machine as a whole is gradually and certainly, though insensibly, going to decay; and a time comes at last, when the replacement of parts will not maintain its efficiency, and then it must be cast aside altogether."[2] Littleton has suggested that there were three ways that changes in asset values were reflected in early railroad accounts.[3]

The first of these was simply a periodic revaluation of properties, which appeared among the English railroads. The Grand Junction Railway, the Liverpool & Manchester Railway, and the North Union Railway all followed this practice in the 1830's. The Grand Junction, for example, valued its rolling stock according to its current market value; the change in value, whether debit or credit, was entered in the revenue account at six month intervals.[4] In statistics compiled from reports to the Massachusetts legislature in 1851, George A. Foxcroft cites the following data for the Boston and Lowell Railroad:

Incorporated 1830	
Cost January 1, 1849	$2,013,600
Cost January 1, 1850	1,945,650
Decrease (Caused by revaluation of the fixed property of the road)	67,950

Other railroads in Massachusetts followed the same revaluation practice during the 1840's, although an upward revaluation appeared to be more commonplace than a downward one.[5] An American writer, Dionysius Lardner, indicated his opposition to this practice in his book published in 1850, stating that "If time has diffused some portions (of railroad assets), new portions have been infused so that on the whole the value in use remains the same."[6] The periodic revaluation of fixed assets was an early attempt by some railway accountants to solve the asset valuation problems, a solution which ultimately fell into disfavor. As Lardner pointed out, market values are determined by causes over which a company has no control and are independent of the "use or abuse of their property;" furthermore, revaluation on the basis of increased market values did not provide funds for the replacement of assets at the end of their lives.

A second method of reflecting changes in asset values entailed the setting aside of an annuity each year which would accumulate to the amount required for replacement at the estimated time it would be necessary. In its seventh annual report of 1833, the Baltimore and Ohio Railroad (B&O) devoted one section to the presentation of estimates of the cost of construction and of repairs and renewals of railway using this method. The annual provision for "oak sills and sleepers and yellow pine string pieces" was expressed as "an annuity of equivalent value (to $3,342 due 12 years hence) to commence at the end of one year, to continue 12 years, reckoning compound interest at 5 percent is $209.97."[7] This method appears never to have been widely adopted however, probably because of its relative sophistication and of the need to estimate useful lives and discount rates. Indeed the B&O itself might possibly have discontinued this practice; excerpts from its annual report of 1849 shows expenditures for "repair of road bed" and "repair of motive power" but there is no mention of a provision for replacing these items.[8]

Littleton referred to a third type of early asset valuation which he called the "renewal method." Actually there existed two distinct practices: Repairs and renewals were charged to expense either directly (others referred to this as the "replacement" or "retirement" method) or through an intermediate "renewal" account. Charges to such a renewal account represented estimated amounts by which an asset's value was said to have declined in excess of actual expenditures for repair. The Eastern Railroad, which ran from Boston to Portland, Maine, showed a charge of this type in its annual report for 1846.[9] A good description of the use of renewal accounts for

valuation is contained in the Report of the Boston and Providence Railroad (B&P) for 1859:

> In making up the account of expenditures, it will be seen that we have adopted a course which, if adhered to, will secure a good degree of uniformity in the charged expenses of operating the road.
>
> In the first place, we assume that there is an annual decay of sleepers, bridges, station house, etc., and that the extent of that decay for each year, is properly chargeable to the expenses of that year. . . .
>
> We have endeavored to ascertain, so far as is practicable, from the experience of years, what may be expected with a given amount of business, to be the amount of expenses chargeable to each account, annually; and if any year the amount expended actually falls short of that estimate, we do not rely upon a permanent reduction of those expenses, but charge the expenses of that year with the estimated amount, and carry the difference to a fund to meet what may be expenditures of another year on that account beyond the estimate.

The report additionally contained a summary of receipts and expenditures which showed expenditures for eleven items such as new sleepers, new iron, repairs on locomotives, and repairs on stations, buildings, and fixtures. For each of these accounts there was a contra renewal account, for example, "renewal for new iron."[10] The presentation was remarkedly similar to the modern day presentation of accumulated depreciation; indeed the passage quoted indicates that the B&P accountants had a notion of the "annual decay" of an asset's value similar to the modern concept of depreciation. However, charges were not made in a systematic manner but were based on the excess of estimated expenses over actual expenditures and varied from year to year.

As early as 1844 the same railroad in its annual report described a tardy recognition of accumulated depreciation from January 1, 1834:

> On the 31st ultimo we made a careful estimate of the present value of cars, engines, and other personal property of the corporation, which had been charged to the account of construction, and have charged against such depreciation from the cost to income account, the sum of forty

> thousand dollars, and deducted the same from the cost of construction.[11]

Again in 1845 an additional $36,004.84 of depreciation on cars and engines was recognized. By 1870 however the Railroad's annual reports had ceased to show expense charges to the renewal accounts; in fact the 1871 report showed subtractions from three of the expenditure accounts which were explained as "Amount charged to renewal fund." From 1872 until 1888, when the B&P was absorbed by the Old Colony Railroad, the renewal accounts were not shown nor was any other attempt made to account for decreases in fixed asset values.

Apparently the B&P had adopted the retirement method of accounting for fixed assets, which was the most widespread theory from the mid-nineteenth century until the early twentieth.[12] Under this method, the expense due to the exhaustion of property was recognized at the time of the retirement of a unit of the property. This was most often justified by the argument that as long as the property was maintained in good repair then no decrease in the value of the asset had occurred. This argument was advocated by Lardner in his *Railway Economics* and was also enunciated by the president of the Galena and Chicago Union Railroad Company in 1857:

> It will be interesting to examine more particularly the question of depreciation of the road and works. This takes place from year to year in the superstructure of the road, in the rolling stock and in the bridges and buildings. The road bed embankments become appreciated year by year, by the labor which is necessarily embraced in the current expenditures for cleaning out cuts and ditches and raising embankments and ballasting.
>
> The preceding statements show, that the present value of the rolling stock is more than fifty thousand dollars greater than the amount which has been charged to construction for that purpose. In this item, there has also been an appreciation.
>
> The large expenditures which have been made during the year, in replacing the original, temporary and imperfect bridges and culverts, by permanent and improved structures have been sufficient to cover any possible depreciation under this head; . . . The buildings have been put in

> thorough repair during the season, and are now worth almost, if not quite, as much as they cost.[13]

By 1880 the revaluation, annuity and renewal account methods of accounting for changes in asset values had virtually disappeared in the United States and had been replaced by the retirement method. This replacement, according to Pollins, occurred in England in the fifties and sixties as companies found that their past allocations of depreciation reserves had been inadequate.[14] Although these three methods were not strictly depreciation in its modern definition, they did represent an early response to the asset valuation problem and were forerunners of our modern concept. As Holmes has said:

> Depreciation was a knotty problem for these early railroad accountants. They argued over it, scorned it, denied it, anatomized it, and misused their own concepts. But in the end it was from the very ashes of their disagreements that our modern concepts of depreciation arose Phoenix-like fifty years later.[15]

However, one cannot objectively attribute the existence of early attempts to reflect the declines in asset values entirely to the good intentions of the railroads or of their accountants. In the United States a great deal of the impetus to provide funds for the replacement of fixed assets came from governmental agencies. In 1846 the State of Massachusetts provided a new format for the annual reports submitted to it by its railroads which included disclosure of depreciation estimates. A section of the format was entitled "Motive Power of Cars" and is reproduced in Exhibit 1.

EXHIBIT 1

State of Massachusetts
Disclosure Requirements—Motive Power of Cars

For repairs of locomotives	xxxx
For new locomotives, to cover depreciation	xxxx
For repairs of passenger cars	xxxx
For new passenger cars, to cover depreciation	xxxx
For repairs of merchandise cars	xxxx
For new merchandise cars to cover depreciation	xxxx
For repairs of gravel and other cars	xxxx
Total for maintenance of motive power and cars	xxxx

Following the computations of dividends and surplus, the railroads were also required to disclose "estimated depreciation beyond the renewals" for roads and bridges, buildings, and engines and cars.[16] Similar requirements for disclosure of depreciation existed in other states. New York, which with Massachusetts contained the bulk of railroad track laid by 1850, included such a provision in a law passed by its legislature in 1849. The law required the filing of an annual report with the State Engineer and Surveyor which included, among other things, a statement of "the amount charged for depreciation of road, engines, cars, etc." The law did not, however require that such depreciation charges be made.[17] Another law enacted in New Hampshire in 1850 stipulated the disclosure of "estimated depreciation beyond renewals, namely: Road and bridges, buildings, engines, and cars."[18]

Nevertheless the mere existence of laws which allowed charges for depreciation against earnings would not serve to encourage such charges. Such encouragement could be provided, however, by the existence of limitations on the net earnings of the railroads. In 1846 the State of Massachusetts permitted a maximum earnings of 10% with any excess recovered by the State as a tax. A simple management expedient to avoid such a tax would involve expensing sums in addition to actual expenditures to a renewal account for a capital asset. Following such a policy as that previously quoted for the Boston & Providence Railroad, depreciation provisions would provide a means of moderating income fluctuations, and this was, in fact, cited as one of the advantages of the method. It may be significant to note that, of all the railroads referred to by Littleton and Mason in their discussions of early depreciation methods, the only ones which are known to have repeatedly reflected such charges in their accounts operated in the State of Massachusetts. According to Littleton, in 1876 the Massachusetts Railway Commission issued a revised set of instructions regarding railway accounts which made no mention of depreciation as such, but rather called for the reporting of "new locomotives charged to operating expense to make good original numbers."[19] This revision reflected an official acknowledgement of the prevalence among railroads of the retirement method in accounting for fixed assets. The earlier law which had provided for a tax on excess railroad earnings was supplanted by an 1869 law establishing the commission, which itself had no rate regulating authority.[20] Thus, there is evidence to indicate that early depreciation methods, which first became evident in the railroads, were employed not out of considerations for proper asset valuations

based in any accounting theory, but were rather instruments of management policy in pursuing the best interests of the railroads themselves.

THE PROBLEM OF PUBLIC REPORTING

As one of the first major industries to require large investments in fixed assets, the railroads were among the first to develop the need for outside capital. Prior to the construction of the first railroads in 1830, the predominant business form in the United States had been the small, family owned proprietorship or partnership. The railroads capital needs were so massive, however, that they were compelled to depend heavily on external financing; thus railroad accountants were the first major group to face the problem of public reporting in order to attract capital. The magnitude of the capital requirements can be seen from statistics compiled by Dogett's Railroad Guide of September, 1847. Railroad mileage in the United States grew from 155 miles at the end of 1830, to 5,740 miles at the end of 1847, requiring a total investment of $122,525,937 in this 17 year period alone.[21] Similar expansions were taking place in England and, to a lesser extent, in other European countries. In order to attract this capital and maintain a market for railroad securities, accountants were forced to develop means both for disclosure of railroad operating results and for ways to report on the custodianship of assets. Since few private companies had previously been required to deal with this problem, there were few precedents to establish the kind of disclosure to be made or the accounting and statistical methods to be followed. A survey of early nineteenth century railroad financial statistics, therefore, provides some interesting insights into the development of current-day financial reporting procedures and measurement concepts.

Early Practices

Initially most railroad accounting records were kept on a cash basis, and as a result their reports primarily dealt with the sources and disposition of cash and with statistical measures of the flow of traffic. The first report issued by the Utica and Schenectedy Railroad covered the period from its opening in 1836 until January 1, 1841, and was partially reprinted in *Hunt's Merchants Magazine*.[22] As an illustration of the early form of disclosure, this data is included in Exhibit 2.

EXHIBIT 2

Utica and Schenectedy Railroad
Report of the. Treasurer (1841)

The capital of the company is 20,000 shares		$2,000,000
The total cost of the road, from its commencement to the 1st Jan. 1841, including the right of way, $322,470, and the purchase of the Mohawk Turnpike, $62,500, was		1,901,785
The calls on stockholders have been	$1,500,000	
Ditto, derived from dividends	300,000	1,800,000
The amount received from passengers, the mail and all sources in 4 years and 5 months, from commencement of road to 1st Jan., 1841		1,618,517
The total expenses during the same period		552,598
Nett earnings, 71 percent on 4½ years		1,065,918
The dividends declared to 1st Jan., 1841 being equal to 13½ percent per annum on the capital of $1,500,000, during 4½ years		917,000
The total cost per mile of the 78 miles, including motive power, right of way and turnpike, is	$ 23,580	
Off right of way and turnpike	4,934	18,646

A more typical report format provided a tabulation of receipts and expenditures. The next Treasurer's Report (See Exhibit 3) of the Utica and Schenectedy was issued in 1842, similarly covered the period from the inception of the railroad until December 31, 1841, and followed a format which was fairly standard in railroad reports for thirty years.[23]

It is noteworthy that, although these reports were being issued at yearly intervals in accordance with legislative requirements, they did not attempt to measure changes in the accounts but rather reflected the status of the accounts at a point in time. Included in the 1842 report were statistics concerning the number of passengers carried and the receipts from various sources (passengers, mail, turnpike tolls, interest and miscellaneous) for each year from 1836-1841. No attempt was made, however, to match expenditures with receipts for these years. In a similar report published in 1844, the New York and Erie Railroad tabulated its receipts and expenditures

from its opening until February of that year.[24] The Boston and Maine was still following this practice in 1848.[25]

EXHIBIT 3

Utica and Schenectedy Railroad
Report of the Treasurer (1842)

Amount received for installments on stock		$1,800,000.00
"	transportation of passengers	1,864,691.53
"	" U.S. mail	83,047.10
"	tolls of Mohawk Turnpike	22,834.78
"	interest on money deposited	10,226.87
"	from miscellaneous sources	49,134.71
Total receipts from all sources to Dec. 31, 1841		$3,829,934.99
Deduct expenditures for all accounts up to Dec. 31, 1841, viz.:		
On construction account	$1,968,022.17	
On transportation account	709,230.12	
On dividend account	1,017,000.00	
Total expenditures	$3,694,252.29	
Balance, being excess of receipts over expenditures up to Dec. 31, 1841		$ 135,682.70

Periodic Reporting

It appears that by the end of the 1840's, however, the practice of reporting receipts and expenditures for periodic intervals had become more common. Some railroads followed the practice of providing this information in financial reports covering both annual and semiannual periods. For example both the South Carolina and the Eastern Railroads disclosed receipts, expenditures, and profits or surplus (on a cash basis) for the year in 1846 and also for each six-month period in the year.[26] The report of the South Carolina is also interesting because it contained, along with the usual traffic and mileage statistics, two statements which were remarkedly similar to an income statement and balance sheet. These statements are replicated in Exhibit 4.

The South Carolina was thus one of the earliest railroads to recognize the distinction between capital and expense expenditures and the need for accruals. Note also the property statement item "By shares in the railroad," which is presumably treasury stock being carried in the accounts as an asset.

EXHIBIT 4

South Carolina Railroad
General Statement of Receipts and Expenditures
For the Year 1846

Gross receipts from all sources in first half year	$251,741.36
Ordinary current expenses for same time	193,592.21
Nett profits for the first half year	$ 58,149.15
Gross receipts from all sources second half year	$337,340.16
Ordinary current expenses for same time	224,578.96
Nett profits for second half year	$112,761.20
Nett profits for the year 1846	$170,910.35

Property Statement, December 31, 1846

DR.		
To stock — for $35 per share on 34,800 shares		$2,610,000.00
" — instalments forfeited		312,417.65
To surplus income		40,708.52
To balance of indebtedness		2,765,090.74
Total		$5,728,216.91
CR.		
By purchase of Charleston and Hamburgh railroad, embracing road, machinery, &c.	$2,714,377.50	
By purchase of land attached thereto	59,741.30	
" of negroes	11,963.19	
		$2,736,081.99
By construction of Columbia branch		2,863,654.49
By lands purchased since January, 1844	$ 5,083.83	
By loss to credit Aiken lands	35.35	
		5,048.48
By negroes purchased since January, 1844		800.00
By suspense account		8,490.00
By rail iron purchased		15,773.97
By improvement of depots		8,680.29
" of property		30,437.49
By shares in the railroad		40.00

By amount due on pay-rolls and bills not charged, but forming part of balance of indebtedness	9,210.60
Total	$5,728,216.91

Such semiannual reporting was exceptional even though the Grand Trunk Railway in Canada was issuing semiannual financial reports in 1875 and continued the practice until as late as 1907. However by the mid 1850's the annual reporting of receipts and expenditures along with numerous statistical tables was the prevalent practice in this country, a development which was no doubt influenced by the legal reporting requirements which existed in many states.

Matching

Another twenty years passed before railroad accountants became concerned with the need for matching expenses with revenues to arrive at a measure of income. Some of the early experiments with depreciation were, of course, attempts to do this, but such practices did not persist as has already been discussed. It was not until the 1870's that the railroads began to show evidence of the use of accruals in their financial statements. By this time many reports had grown to be 60-70 pages in length and some would contain information, often statistical, from all the major divisions of the company—engineering, operations, and legal as well as financial. The earlier statements of receipts and expenditures had evolved into multiple statements representing both cash flow and earnings. For example, the Allegheny Valley Railroad Company in its 1866 annual report provided both a "Statement of Earnings and Expenses" which was an analysis of the surplus account in "T" form, and a statement of "Receipts and Expenses" in tabular form. The former was apparently a predecessor of the modern income statement, and the latter of a modern funds flow statement. In 1870 the Boston and Providence similarly provided a statement of Receipts and Expenses, a "T" format analysis of profit and loss, and a trial balance as of the year-end date. Numerous other railroads during the 1870's provided both funds and income disclosures including the Atchison, Topeka & Santa Fe (AT&SF), the Flint and Pere Marquette, and the Chicago and Alton. In 1879 the Chicago and Alton's Statement of General Balances contained an accrued liability, described as "sundry items of rent accrued on leased lines, not yet due." The AT&SF was probably one of the first to attempt overhead allocations. In its 1874

report it provided a table which showed a distribution of all overhead expense between receipts from "freight service" and from "passenger service." This table was entitled "Division of Operating Accounts for the Year 1874" and was included for the last time in 1876.

Working Capital

It has been pointed out that statements providing cash flow information existed in railroad financial reports from their earliest operations, and cash flow on an annual basis from the late 1840's. It was not until the latter part of the nineteenth century that the concept of funds flow as a change in working capital items began to emerge. One of the first evidences was the Report of the Board of Directors of the New York, Lake Erie & Western Railway Company which covered the period from June 1, 1878 to September 30, 1878. This report, which covered an abbreviated period due to a change in the fiscal year, included a summary of financial transactions from October 1, 1877, to October 1, 1878. The summary began with the surplus for the year, and added "means realized from sources" which included decreases in various asset accounts and an increase in "amounts due to other companies and individuals on Current Accounts." The summary then arrived at a total of surplus and "other means," and stated "This amount is accounted for as follows." The explanatory items included purchases of equipment, land and stock and bonds, payment of interest, and increases and decreases in various liability accounts.[27] The 1880 Report of the Flint and Pere Marquette included a side by side presentation of "Resources" and "Disposition." Resources consisted of Gross Earnings, proceeds of a bond issue, and a category described as "floating liabilities" which was apparently their description of current liabilities. Disposition included expenditures for construction, interest, and "floating assets." Total resources were then shown to be equal to total disposition.[28] It is significant perhaps that each of these reports were issued while the railroads were in receivership; the receiver in each case felt a fiduciary responsibility to the courts and creditors to disclose the sources and applications of the railroads' funds.

A more clearly-defined understanding of the working capital concept was presented among the statistical tables of the Southern Pacific lines in 1896 in its "Statement of Receipts and Disbursements from all Sources." Receipts included net profits, receipts from capital created and proceeds from sale of property, and collection of deferred and contingent assets. Disbursements for capi-

tal asset purchases were also detailed. Then the increase in current assets was subtracted from Receipts and a net decrease in current liabilities was added to Disbursements to arrive at totals which were equal. Thus by the twentieth century, a concept of funds flow very similar to that currently employed had developed in the accounting practices of the railroads.

Early railroad accountants were among the first practitioners to be faced with the need for reporting to the public on the results of business operations and the custodianship of assets. In response to this need these accountants developed methods of disclosure from which arose many of the basic accounting concepts and principles of current day accounting theory. Thus accounting and disclosure practices in the railroad industry developed as a response to the economic environment created by the industrial revolution; another factor, however, which had a substantial effect on railroad accounting was the increasing power and regulation of governmental authorities.

THE PROBLEM OF GOVERNMENT REGULATION

Government attitudes toward regulation of the railroad companies evolved during the nineteenth century just as did the railroads' accounting policies. The railroads constituted not only the first major industry to develop a need for public reporting, they were also the first which was required to operate under extensive governmental supervision and control. This control affected not only the routes they could build and the rates they could charge, but also their accounting policies as well.

A History of Railroad Regulation

In an address before a convention of railroad commissioners in 1893, Henry C. Adams indicated that four distinct views have been held regarding the relation of public highways to the government.[29] Prior to 1830, it was considered a proper function of the federal government to supply the public with turnpikes and canals. During the period 1830-1850 however, the view became prominent that this function rested with the states. A number of states including Pennsylvania, Georgia, Michigan, Indiana, and Illinois provided for public ownership of railroads, and other states either considered this alternative or provided means for public control.[30] After the Panic of 1837-39, many of these public systems failed and opinion turned against public ownership and control. During the period 1850-1870,

private corporations were viewed as the proper organizations for building and controlling railroads; the railroad promoter was viewed as a public benefactor and it was deemed essential to encourage the construction of the maximum amount of mileage in the shortest interval of time.[31] After 1870 the public, particularly in some of the midwestern states, began to feel that free competition was not working satisfactorily in the railroad industry. A number of states passed laws, including the Granger Laws, which asserted the right of public control over internal commerce. In 1877 the Supreme Court upheld this right, and, in 1887 Congress enacted the Interstate Commerce Act extending this type of authority to the federal government.

Regulation and Accounting Policies

Although most regulatory commissions were established in order to control rates rather than accounting policies, evidence indicates that such control did affect railroad accounting. One of the first general regulatory laws was enacted in Virginia in 1837. This law required railroads within the state to submit an annual report to the Board of Public Works disclosing the amount of capital stock, the gross receipts, and the net loss or profit for the year. The law stipulated that any return on capital stock in excess of 7% would be remitted to the State as a tax. Ferguson notes that in the 30 years which this law was in effect in Virginia, the Board never collected an excess profits tax from a single railroad.[32] A commission was established in Massachusetts in 1841; it has already been suggested that the 10% profit limitation served to encourage the use of depreciation reserves in that State.

By the 1880's, most states had established some sort of statutory means for railroad regulation, either through commissions which were advisory in nature or those which had rate setting authority. The Granger Laws, passed in Illinois, Iowa, Minnesota, and Wisconsin during the 1870's were the first of the latter type. By 1893, 17 states as well as the Interstate Commerce Commission had legal authority to set maximum rates.[33] The prevalent method of rate setting during this latter period provided for a set return for the railroad on its investment in capital assets; it is significant that the increase in use of this criterion approximately coincided with the increased use of the retirement method for asset valuation, the demise of the use of depreciation reserves among the railroads, and a trend toward capitalizing rather than expensing new assets. One can conclude that the railroads often found it expedient to use accounting practices for asset valuation which maximized their base for rate

setting calculations regardless of the validity of the underlying accounting theory. A similar conclusion was reached by Boer, who described the late nineteenth century debates regarding the choice of whether to use replacement or historical costs in determining the rate base.[34]

The influence of the regulatory agencies on railroad accounting policies was not always this indirect, however. The financial difficulty of many railroads during the Panic of 1893, and the subsequent failure of some major lines, emphasized the need for better public disclosure of their financial health.

Regulation and Disclosure

Although railroad financial reports during the latter part of the nineteenth century typically contained voluminous detailed tables of statistics concerning shipments, expenditures, receipts, and services provided, the quality of disclosure was generally considered to be inadequate. Concerning this problem, the *Railroad Gazette* in 1893 made the following comments:

> The annual report of a railroad is often a very blind document, and the average stockholder, taking one of these reports, generally gives up before he begins. He hears that reports are often made for the express purpose of concealing the truth, and he naturally concludes that his own managers are the kind of men that follow that method. There are two common ways of discouraging the inquiring stockholder. One is to make a very brief report, telling him, in effect, that the company's affairs are none of his business. The other is to tell him a great many facts, but to leave out those he wants, and to set upside down the most important of those which are shown. The latter is the more common way. . . .[35]

Edwards states that the first of several railroad audits by Price, Waterhouse & Company was undertaken after the Norfolk & Western Railway was placed in receivership during this period.[36] In another *Railroad Gazette* article in 1893, an unnamed auditor described some of the misleading accounting practices followed by many railroads, and then lamented that such notable railroad failures as those of the Reading and the Baltimore & Ohio could occur without being anticipated by stockholders and the public. He went on to ask:

> Would it not be well for the railroad companies to take the people into their confidence and say, our liabilities are

> so much, the real value of our assets is so much, and the deficiency so much, which we will square up out of earnings as soon as possible, and start on an even keel?. . . . It is not what a road has cost that the stock and bondholders and people want to know; it is its value in gold, and this will not be given except by legal compulsion.[37]

The auditor was not alone in his concern; sentiment in favor of financial regulation of common carriers grew steadily following the Panic of 1893. Congress extended the power of the Interstate Commerce Commission (ICC) in this area by the Elkins Amendment of 1903 and the Hepburn Act of 1906 which empowered the agency to prescribe a uniform chart of accounts for railroads.[38,39] In its annual report for 1908 the ICC said:

> No court or commission or accountant or financial writer would for a moment consider that the present balance sheet statement purporting to give the "cost of property" suggests even in a remote degree, a reliable measure either of money invested or of present value. Thus . . . the balance sheets published by American railways are found to be inadequate. They are incapable of rendering the service which may rightly be demanded of them.[40]

The movement for additional regulation of railroads received added impetus in the period 1913-1917 as the ICC investigated a number of financial scandals in the industry.[41] The Valuation Act of 1914 directed the Commission to conduct a detailed valuation of the assets of all common carriers affected by the Interstate Commerce Act. Finally in 1920 Congress enacted the Transportation Act, giving the ICC control over the issue of railroad securities and requiring it to prescribe changes in railroad asset valuation methods. In implementing this act the Commission issued rules to prevent overcapitalization and stock watering and in 1926 required carriers to adopt depreciation methods of accounting for fixed assets. In justifying this requirement, the ICC pointed out that the retirement method, which had been in widespread use since the 1870's, could be used to avoid recapture of excess earnings. Furthermore, "investors must be protected against falsifying accounts and keeping up the appearance of earnings by postponing necessary replacements."[42] Thus the Congress succeeded in forcing the kind of disclosure in railroad financial reporting which accountants and industry observers had recognized as a need some thirty-five years earlier.

CONCLUSION

From the foregoing analysis a number of conclusions and implications can be drawn regarding the influence of railroad accounting. Because the railroad industry was the first major capital intensive industry, it was the first to be faced with the accounting problems of asset valuation and public disclosure. Many of the concepts which are basic to the practice of modern accounting began to appear among the railroads in the middle part of the nineteenth century because of their need to inform stockholders and creditors about their operations. Railroad accounting developed, however, not only in response to this economic environment but also to a political one as well. There is evidence that many railroad accounting policies were adopted, from their early periods of existence, because of the effects of governmental controls and reporting requirements and not from considerations of accounting theory. When it became apparent that the railroads would not voluntarily begin public reporting in a fashion that accurately represented their financial health, governmental agencies took action in order to achieve this goal. From ten years after the railroads were introduced in this country until well into the twentieth century, the governmental influence has been a primary force in the development of adequate railroad disclosure.

The lesson of the railroad experience to modern day accountants is clear. Modern corporations, like the nineteenth century railroads, may be expected to exploit their accounting records to achieve their own interests, and often these interests will conflict with those of the public in general. If the profession of independent accountants cannot implement changes in current accounting policies to achieve a more realistic disclosure of economic health, then government agencies will attempt to make these changes instead. Perhaps a repeat in other areas of the experience of the railroads has already begun.

FOOTNOTES

[1]Chatfield, p. 94.
[2]Pollins, p. 344.
[3]Littleton, p. 228.
[4]Pollins, p. 345.
[5]Hunt's, April 1851, p. 499.
[6]Littleton, p. 228.
[7]Mason, p. 211.
[8]Hunt's, May 1850, p. 564.
[9]Hunt's, October 1847, p. 628.
[10]Boston and Providence Railroad, 1859.
[11]Mason, p. 217.

[12]May, p. 336.
[13]Galena & Chicago Union Railroad Company, 1857.
[14]Pollins, p. 349.
[15]Holmes, p. 18.
[16]Mason, p. 218.
[17]Hunt's, June 1849, p. 655.
[18]Hunt's, September 1850, p. 356.
[19]Littleton, p. 234.
[20]Miller. See also the comments of Adams, p. 315.
[21]Hunt's, June 1848, p. 99.
[22]Hunt's, May 1841, p. 482.
[23]Hunt's, November 1843, p. 480.
[24]Hunt's, October 1845, p. 384.
[25]Hunt's, November 1848, p. 566.
[26]Hunt's, January 1848, p. 100, and October 1847, p. 628.
[27]New York, Lake Erie and Western Railroad Company, p. 92.
[28]Flint & Pere Marquette Railroad Company, p. 10.
[29]Adams, p. 315.
[30]Miller, p. 43.
[31]Bernhardt, p. 2.
[32]Ferguson, p. 18.
[33]Adams, p. 315.
[34]Boer, p. 93.
[35]Railroad Gazette, January 6, 1893, p. 12.
[36]Edwards, p. 48.
[37]Railroad Gazette, May 19, 1893, p. 373.
[38]Bogen, p. 29.
[39]Holmes, p. 18.
[40]Bernhardt, p. 29.
[41]Locklin, p. 7.
[42]Locklin, p. 171.

BIBLIOGRAPHY

Adams, Henry C., "Service of a Bureau of Statistics and Accounts in the Solution of the Railroad Question," read before the Convention of Railroad Commissioners, Washington, D.C., April 19, 1893. Reprinted in *Railway Gazette,* April 28, 1893.

Bernhardt, Joshua, *The Interstate Commerce Commission,* Baltimore: Johns Hopkins Press, 1923.

Boer, Germain, "Replacement Cost: A Historical Look," *Accounting Review,* January, 1966.

Bogen, Jules I., *Analysis of Railroad Securities,* New York: Ronald Press, 1928.

Boston and Providence Railroad, *Report of the Board of Directors,* Boston, 1859.

Chatfield, Michael, *A History of Accounting Thought,* Hinsdale, Ill.: Dryden Press, 1974.

Edwards, James Don, *History of Public Accounting in the United States,* East Lansing: Michigan State University, 1961.

Ferguson, Maxwell, *State Regulation of Railroads in the South,* New York: Columbia University Press, 1916.

Flint & Pere Marquette Railroad Company, *Report of the Flint & Pere Marquette Railroad Company,* December 31, 1880.

Galena & Chicago Union Railroad Company, *Annual Report for 1857.*

Holmes, William, "Accounting and Accountants in Massachusetts," *CPA Review,* May/June, 1975.

Hunt's Merchants Magazine and Commercial Review, New York, Fulton Street, Freeman Hunt, Editor, 1839-1855.

Littleton, A. C., *Accounting Evolution to 1900,* New York: American Institute Publishing Company, 1953.

Locklin, D. P., *Railroad Regulation Since 1900,* New York: McGraw-Hill, 1928.

Mason, Perry, "Illustrations of the Early Treatment of Depreciation," *Accounting Review,* September, 1933.

May, George O., *Twenty-five Years of Accounting Responsibility,* New York: American Institute Publishing Company, 1936.

Miller, George H., *Railroads and the Granger Laws,* Madison: University of Wisconsin Press, 1971.

New York, Lake Erie and Western Railroad Company, *Report of the Board of Directors,* June 1, 1878 - September 30, 1878.

Pollins, Harold, "Aspects of Railway Accounting Before 1868," in A. C. Littleton and B. S. Yamey, eds. *Studies in the History of Accounting,* Homewood, Ill.: Richard D. Irwin, 1956.

Railroad Gazette, Orange, Conn.: Simmons-Boardman Publishing Corp., 1893.